

BIBLIOGRAPHY AND INDEX OF CATALOGUES OF TYPE, FIGURED, AND CITED FOSSILS IN MUSEUMS IN BRITAIN

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ABSTRACT. Published (and some unpublished) information on the distribution of type, figured, and cited fossils in museums in Great Britain and Ireland is collated in a bibliography as an initial aid in tracing type collections and individual specimens. The catalogues are indexed taxonomically, stratigraphically, and by museums. A supplementary reference list draws attention to some further publications which may be useful in locating old collections.

. . . *Of what advantage was it to science that, when Dr Otto Jaekel was writing his admirable memoir on the Devonian crinoids of Germany, all the type specimens described by Schultze in his 'Echinodermen des Eifler Kalkes' were locked up in dusty boxes in a store room at Harvard? . . .*

F. A. BATHER. 1897. *Science*, New Ser. 5, 695.

. . . *The value of all types and figured specimens, and the necessity for their safe preservation are now duly recognised. The recognition has come none too soon. Specialists in particular have to regret the disappearance of many of the types figured by older authors. And the more doubtful the identification of a species, the more is the disappearance of the type to be regretted, and the greater would be its value if it could be recovered. . . .*

S. S. BUCKMAN. 1899. *Proc. Cotteswold Nat.Fld Club*, 13, 133.

At the fifty-ninth annual meeting of the British Association for the Advancement of Science held at Newcastle upon Tyne in September 1889, a Committee was appointed 'To consider the best methods for the registration of all Type Specimens of Fossils in the British Isles, and to report on the same' (*Rep. Br. Ass. Advmt Sci.* 1890, p. lxxxiv). The following year the Committee gave details of a recording form which they recommended should be sent to the curators of all museums and owners of private collections, and at the meeting for 1891 they were able to report that 'several valuable lists have already been received'. Progress in the gathering of this information was reported briefly and intermittently at subsequent meetings of the Association, up to that of 1903, after which the Committee appears to have become defunct, although there is no record of it being formally disbanded. Unfortunately the data accumulated as a result of this exercise were never collated, and a great deal of information on the whereabouts of many type specimens remained unpublished, notably those in private collections.

However, in response to the stimulus generated by the British Association survey, and partly as a result of the direct influence of some members of the Committee, a number of museums did publish their own catalogues of type and figured specimens. In some cases the inventories have subsequently been revised and/or expanded from time to time, and other institutions have since also produced catalogues of all, or specialized parts of their collections. Together with a few earlier, nineteenth-century publications, which include information on type specimens, these catalogues form the main basis of this bibliography.

In 1967 a similar compilation on a world-wide scale was attempted by the

International Council of Museums (I.C.O.M.), to cover both zoological and palaeontological collections. This resulted in the publication in 1968 of *A preliminary list of catalogues of type specimens in zoology and palaeontology* (30 pp., compiled by A. W. F. Banfield, published by the State Committee of Culture and Art on the occasion of the 20th anniversary of the I.C.O.M., Bucharest, Romania, in French and English). This list contains only thirty-seven references to palaeontological collections for the whole of the world, with just eight from Britain, and has a limited index; it thus provides little guidance to the distribution of type-fossil specimens in British museums, a factor which partly prompted the present compilation.

In modern systematic palaeontological literature it is standard practice to quote details of the repositories and registration numbers of type, figured, and individually cited specimens; indeed, most journals rightly insist that this information should be included as standard, in accordance with recommendations made by the International Commissions on Zoological and Botanical Nomenclature. Such practice ensures that specimens will be readily traceable in the future, but it is a relatively recent innovation and a vast bulk of past publications conspicuously lacks these basic data. It is frequently difficult or impossible, therefore, to determine from the primary literature the present whereabouts of old type or figured specimens which may be essential for revisionary studies of some fossil groups, or important for comparative purposes, especially where those specimens are not housed in major museums, and it is all too easy to regard old material as 'lost'. Yet the published catalogues of type specimens contain a great deal of information on individual fossils and collections described in the past, which have fortunately found their way into museums; a number refer to small institutions or are published in local journals which may be unfamiliar to many individuals. The time-consuming effort of tracking down old collections can often be solved simply by referring to these catalogues, and the primary aim of this bibliography is to draw the attention of palaeontologists to the published lists as an initial aid in such a search.

Of course many old type and figured specimens are genuinely lost, but it seems certain too that many others exist unknowingly in public and private collections. The responsibility for tracing old type material in any systematic study rests very much with the individual, but there are limits to the extent that anyone can go in ensuring beyond all doubt that particular specimens no longer exist. These limits would be reduced significantly if all institutions were to accept their share of responsibility in checking collections for type material, and to ensure that details of such material are widely publicized; this institutional responsibility is best summarized by Recommendation 72D of the International Code of Zoological Nomenclature, which states that:

Every institution in which types are deposited should:

- (1) ensure that all are clearly marked so that they will be unmistakably recognized;
- (2) take all necessary steps for their safe preservation;
- (3) make them accessible for study;
- (4) publish lists of type-material in its possession or custody; and
- (5) so far as possible, communicate information concerning types when requested by zoologists.

Unfortunately it is a sad fact that many institutions and individuals are unaware of, or neglect these recommendations with the result that some type material can still become mislaid or lost. Any such museum should carefully heed the following advice of D. E. Owen concerning the care of type specimens (1964, *Mus. J.* **63**, 288–291).

It is a prerequisite that such a museum must have a suitably qualified member of the staff always in charge of the types. For instance a museum with fossil types must have a geologist on the staff who will be replaced by another geologist if he leaves. This is even more important with perishable specimens which require regular technical treatment. The small museum that may be under the care of a geologist for a few years, an archaeologist next, and then an art expert, had much better place its types in more permanent hands. The University department with types but no permanent curator, had much better place these types in an institution whose staff are appointed primarily to care for the specimens.

Owen also stresses that *The publishing of a list of type and figured specimens in the collections must be the aim of every museum holding such specimens, and efforts should be made to keep this up to date. The specialist, studying a group, usually has great difficulty locating types, and such lists are invaluable.*

Strict attention to all these comments would ensure that essential specimens are both housed properly and brought to the attention of palaeontologists as a whole. One of the aims of the recently constituted Geological Curators Group is to trace type fossil specimens in museums in Britain, particularly those which have no permanent geological staff to uphold the responsibilities outlined above. Where necessary the Group will publish further catalogues of type material in its *Newsletter*, to add to those cited here.

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The format and content of the catalogues listed here varies considerably. Ideally they are published inventories of individual fossil specimens, with information on the repository, museum registration numbers, type data (where applicable), and details of page, plate, and figure numbers in a previous publication referring to those individual specimens; in the comparatively few cases where all these details are not included, the information that is given will generally allow an individual specimen to be identified. The bibliography specifically excludes many museum 'Catalogues' which are published as systematic monographs of particular fossil groups in the collections. The best known of these are the many monographic Catalogues published by the British Museum (Natural History), which will be familiar to specialists working on a particular fossil group. However, where such catalogues do give references to type or figured specimens in addition to those described systematically, they are listed here. Also excluded are the many Guides to displays of fossils in museum galleries, together with straightforward inventories of collections which contain no specific data on type, figured, or cited specimens. Unpublished, manuscript lists are included only where they have been widely distributed by their authors, or are available in the institutions to which they refer.

Information in square brackets after some of the references draws attention to changes in the names or locations of some institutions, and to cases where specimens

are known to have been transferred to different institutions. In this supplementary information The Geological Museum of the Institute of Geological Sciences is referred to as IGS, London, the regional offices of the Institute are referred to as IGS, Leeds and Edinburgh, and the British Museum (Natural History) as BM(NH).

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- [—] 1968b. *Specimens of fossil fishes described and figured in Elgin Museum*. [Typed MS., 2 pp., dated 1968.]
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INDEX

The index is arranged in three sections:

1. A taxonomic index in which genera and species listed in individual catalogues are grouped together in major taxonomic divisions, each of which is then broken down stratigraphically and cross-referenced to authors. To save repetition and space the date of a publication is not given after authors' names in cases where those authors have only one publication under their name, since those references can be located immediately in the bibliography; in all other cases both authors' names and dates of publications are given. The major taxonomic groupings are generally those which are employed as headings in most of the catalogues and correspond with classificatory divisions which will be immediately familiar to palaeontologists. For the invertebrates the groupings are initially at the Phylum level, with each Phylum being further subdivided, generally at the Class or Sub-Class level, wherever those lower categories are commonly studied as fossil groups. The vertebrates are listed under familiar Class groups, with the exception that agnathans and gnathostomes are loosely included together under the single heading Fishes. Plants are listed simply as Plantae or Algae.

Where authors of catalogues have not themselves separated their specimens into the groupings adopted here, their genera and species are included as undifferentiated

members of the highest appropriate division listed. The stratigraphical breakdown within the taxonomic index is as discussed below.

2. A stratigraphical index in which individual specimens listed in catalogues are grouped stratigraphically, with each stratigraphical division then broken down into major taxonomic groups corresponding with those outlined above. No reference is made here to authors since this information can be obtained simply by cross-reference back to the taxonomic index.

In most cases the stratigraphical horizons given for specimens in the catalogues have been grouped together in the index within the geological Systems. Exceptions are made for specimens recorded as coming from undifferentiated Tertiary beds, which are listed here as such, and for specimens from the Tremadoc, Old Red Sandstone, and Rhaetian which are listed separately in order to avoid any confusion which might arise from assigning the material to one or more Systems.

3. A museums index in which all the museums and institutions recorded in the catalogues as including type, figured, or cited fossil specimens are listed and cross-referenced to authors. As in the taxonomic index, dates of publications are given only in cases in which there is more than one reference by any one particular author.

TAXONOMIC INDEX

INVERTEBRATA

Actinozoa: *see* Coelenterata.

Ammonoidea: *see* Mollusca.

Annelida:

- CAMBRIAN, Anderson; Blake; Salter.
- ORDOVICIAN, Salter; Woods 1891.
- SILURIAN, Blake; Curtis 1956; Salter; Stubblefield 1938; Woods 1891.
- DEVONIAN, Blake.
- CARBONIFEROUS, Anderson; Lebour; Sizer.
- RHAETIAN, Sizer.
- JURASSIC, Anderson; Blake; Melmore; Pyrah; Sizer.
- CRETACEOUS, Blake; Melmore; Woods 1891.
- TERTIARY, Blake.
- PLEISTOCENE, Leney; Sizer.

Anthozoa: *see* Coelenterata.

Arachnida: *see* Arthropoda.

Arthropoda (undifferentiated):

- CAMBRIAN, Anderson; Bolton 1892; North; Salter.
- ORDOVICIAN, Jackson.
- SILURIAN, Anderson; Jackson; McHenry and Watts.
- OLD RED SANDSTONE, Anderson.
- DEVONIAN, [Cutbill].
- CARBONIFEROUS, Anderson; Jackson.
- JURASSIC, Jackson.

Arachnida:

- DEVONIAN, [Cutbill].
- CARBONIFEROUS, Bassett.

Crustacea:

- CAMBRIAN, Allen 1902*a*; Bassett; Bolton 1892; North; Salter; Woods 1891, 1893.
- TREMADOC, Bassett.
- ORDOVICIAN, Allen 1902*a*; Bassett; Blake; North; Woods 1891, 1893.
- SILURIAN, Allen 1902*a*; Bassett; Blake; Bolton 1892, 1894; North; Salter; Woods 1891, 1893.
- DEVONIAN, Allen 1902*b*; [Cutbill]; Jukes-Browne and Else; Woods 1891.
- CARBONIFEROUS, Allen 1902*a*; Bassett; Blake; Bolton 1892; Sizer.
- PERMIAN, Blake.
- TRIASSIC, Blake; Sizer.
- RHAETIAN, Blake; Sizer.
- JURASSIC, Blake; Lang, Melmore; Platnauer 1891; Pyrah; Sizer; [Winwood and Wilson]; Woods 1891.
- CRETACEOUS, Blake; Crane 1892; Melmore; Pyrah; Platnauer 1891.
- Eocene, Blake.
- TERTIARY, Blake; Pyrah.
- PLEISTOCENE, Bell; Leney, Sizer.

Insecta:

CARBONIFEROUS, Bassett; North.

RHAETIAN, Pyrah; Sizer.

JURASSIC, Blake; Sizer.

TERTIARY, Blake.

Isopoda:

CRETACEOUS, Woods 1891.

Merostomata:

SILURIAN, Bolton 1892; Woods 1891.

CARBONIFEROUS, Bassett.

Trilobita:

CAMBRIAN, Bassett; Blake; Bolton 1892; Edmonds; North; Salter; Stubblefield 1938; Woods 1891, 1893.

TREMADOC, Bassett; Curtis 1956; Salter.

ORDOVICIAN, Anderson; Bassett; Blake; Currie and George; Edmonds; Gregory; Neaverson; Salter; Strachan *et al.*; Stubblefield 1938; Torrens 1974; Woods 1891.

SILURIAN, Bassett; Blake; Cantrill *et al.*; Currie and George; Curtis 1956; Edmonds; McHenry and Watts; Salter; Stubblefield 1938; Torrens 1974; Woods 1891.

DEVONIAN, Blake; Bolton 1892; Jukes-Browne and Else; McHenry and Watts; Woods 1891.

CARBONIFEROUS, Currie and George; Riley.

Asteroidea: *see* Echinodermata.

Belemnoidea: *see* Mollusca.

Bivalvia: *see* Mollusca.

Blastoidea: *see* Echinodermata.

Brachiopoda:

CAMBRIAN, Anderson; Salter; Woods 1891.

TREMADOC, Curtis 1956.

ORDOVICIAN, Bassett; Blake; Cantrill *et al.*; Currie and George; Jackson; Strachan *et al.*; Stubblefield 1938; Woods 1891.

SILURIAN, Bassett; Blake; Bolton 1892; Cantrill *et al.*; Currie and George; Curtis 1956; Jackson; McHenry and Watts; Salter; Stubblefield 1938; Woods 1891.

OLD RED SANDSTONE, Blake.

DEVONIAN, Allen 1901*b*; Blake; [Cutbill]; [Gregory]; Jukes-Browne and Else; Woods 1891.

CARBONIFEROUS, Anderson; Bassett; Blake; Currie and George; [Gregory]; Jackson; McHenry and Watts; Melmore; North; Platnauer 1891; Pyrah; Woods 1891.

PERMIAN, Jackson; Woods 1891.

TRIASSIC, [Gregory]; Sizer.

JURASSIC, Anderson; Bassett; Blake; Buckman 1899, [1929]; North; Pyrah; Sizer;

Tutcher; [Winwood and Wilson]; Woods 1891, 1893.

CRETACEOUS, Blake; Jackson; Melmore; Platnauer 1891; Pyrah; Woods 1891, 1893.

TERTIARY, Blake; Pyrah.

PLEISTOCENE, Leney; Melmore; Platnauer 1891.

Bryozoa:

CAMBRIAN, Salter.

ORDOVICIAN, Bassett; North; Woods 1891.

SILURIAN, Bassett; Blake; Woods 1891.

DEVONIAN, Allen 1901*b*; [Cutbill]; Jukes-Browne and Else.

CARBONIFEROUS, Anderson; Jackson; Woods 1891.

JURASSIC, Melmore; Platnauer 1891; Pyrah; [Winwood and Wilson]; Woods 1891.

CRETACEOUS, Blake; Woods 1891.

PLIOCENE, Allen 1901*a*.

TERTIARY, Blake; Melmore.

PLEISTOCENE, Leney; Pyrah.

Cephalopoda: *see* Mollusca.

Coelenterata (undifferentiated):

CAMBRIAN, Jackson; Salter.

SILURIAN, Curtis 1956; Jackson; McHenry and Watts; Salter; Stubblefield 1938; Woods 1891.

DEVONIAN, Allen 1901*b*; [Cutbill].

CARBONIFEROUS, Jackson; McHenry and Watts; Melmore; Pyrah.

PERMIAN, Jackson; Woods 1891.

JURASSIC, Jackson; Sizer.

CRETACEOUS, Melmore; Pyrah.

OLIGOCENE, Allen 1900.

TERTIARY, Pyrah.

PLEISTOCENE, Melmore; Pyrah.

Anthozoa:

ORDOVICIAN, Woods 1891.

SILURIAN, Blake; Cantrill *et al.*; Woods 1891.

DEVONIAN, Blake; [Cutbill]; Jukes-Browne and Else.

CARBONIFEROUS, Anderson; Bassett; Blake; Mitchell and White; Neaverson; North; Platnauer 1891; Sime; Woods 1891.

PERMIAN, Blake.

JURASSIC, Blake; [Gregory]; Platnauer 1891; Woods 1891.

CRETACEOUS, Blake; [Gregory]; Platnauer 1891.

EOCENE, Blake; [Gregory]; Woods 1891.

MIOCENE, Blake.

TERTIARY, Blake.

PLEISTOCENE, Bell.

Coelenterata (undifferentiated) (*cont.*):

Conulata:

- TREMADOC, Salter.
 ORDOVICIAN, Bassett; Currie and George.
 SILURIAN, Blake.
 DEVONIAN, Blake.
 CARBONIFEROUS, Bassett; Mitchell and White.

Hydrozoa:

- CAMBRIAN, Salter.
 DEVONIAN, Salter.
 CARBONIFEROUS, Anderson.
 PLIOCENE, Allen 1901a.

Chitinozoa:

- ORDOVICIAN, Wyatt.

Conodonts: *see* Miscellaneous.Conulata: *see* Coelenterata.Crinoidea: *see* Echinodermata.Crustacea: *see* Arthropoda.Cystoidea: *see* Echinodermata.Decapoda: *see* Mollusca.Derived fossils: *see* Miscellaneous.

Echinodermata (undifferentiated):

- CAMBRIAN, Bolton 1892; Salter.
 ORDOVICIAN, Jackson.
 SILURIAN, Jackson; Melmore; Salter.
 DEVONIAN, Allen 1901b; [Cutbill]; Jukes-Browne and Else.
 CARBONIFEROUS, Anderson; Jackson; Melmore; Platnauer 1891.
 JURASSIC, Anderson; Blake; Bolton 1892; Jackson; Melmore; Platnauer 1891; Sizer.
 CRETACEOUS, Blake; Crane 1892; Jackson.
 EOCENE, Allen 1900.
 PLIOCENE, Allen 1901a; Platnauer 1891.
 PLEISTOCENE, Leney; Melmore; Platnauer 1891.

Asteroidea:

- ORDOVICIAN, Allen 1902b; Woods 1891.
 SILURIAN, Allen 1902b; Woods 1891.
 DEVONIAN, Allen 1902b.
 JURASSIC, Woods 1891.

Blastoidea:

- SILURIAN, Bather.
 DEVONIAN, Bather; [Cutbill]; Rowe.
 CARBONIFEROUS, Bather; Rowe.

Crinoidea:

- ORDOVICIAN, Allen 1902b; Bassett; Currie and George; Woods 1891.
 SILURIAN, Allen 1902b; Neaverson; Thompson and George; Woods 1891, 1893.
 DEVONIAN, Allen 1902b; Blake; [Cutbill].
 CARBONIFEROUS, Allen 1902b; Currie and George; McHenry and Watts; Sizer; Woods 1891.
 JURASSIC, Rowe; Woods 1891.
 CRETACEOUS, Woods 1891.

Cystoidea:

- ORDOVICIAN, Allen 1902b; Currie and George.
 SILURIAN, Allen 1902b; Salter.

Echinoidea:

- ORDOVICIAN, Currie and George; Strachan *et al.*
 SILURIAN, Stubblefield 1938.
 DEVONIAN, [Cutbill].
 CARBONIFEROUS, McHenry and Watts; Woods 1891.
 RHAETIAN, Sizer.
 JURASSIC, [Gregory]; Tutchter; Woods 1891.
 CRETACEOUS, Bassett; Blake; [Gregory]; Woods 1891.
 MIOCENE, Blake.
 TERTIARY, Blake.
 PLEISTOCENE, Bell.

Edrioasteroidea:

- ORDOVICIAN, Allen 1902b.
 CARBONIFEROUS, Allen 1902b; Rowe.

Ophiuroidea:

- ORDOVICIAN, Woods 1891.
 DEVONIAN, Allen 1902b.
 CARBONIFEROUS, Allen 1902b.
 JURASSIC, Blake.
 CRETACEOUS, Blake.

Stelleroidea:

- CARBONIFEROUS, McHenry and Watts.

Echinoidea: *see* Echinodermata.Edrioasteroidea: *see* Echinodermata.Foraminifera: *see* Protozoa.Gastropoda: *see* Mollusca.

Graptolithina:

- TREMADOC, Strachan.
 ORDOVICIAN, Anderson; Blake; Strachan; Strahan *et al.*; Woods 1891.
 SILURIAN, Anderson; Blake; Bassett; McHenry and Watts; Strachan; Wyatt.
 DEVONIAN, [Cutbill].

Hydrozoa: *see* Coelenterata.Hyalolitha: *see* Miscellaneous.Insecta: *see* Arthropoda.Isopoda: *see* Arthropoda.Lamellibranchia: *see* Bivalvia.Merostomata: *see* Arthropoda.

Miscellaneous:

Conodonts:

- DEVONIAN, [Cutbill].

Derived fossils:

- in* CARBONIFEROUS, Wyatt.
in TRIASSIC, Bassett.

Hyalolitha:

- ORDOVICIAN, Salter.

Problematica:

PRECAMBRIAN, Sizer.
 SILURIAN, Blake.
 TRIASSIC, Blake.
 JURASSIC, Pyrah.
 EOCENE, Blake.

Tentaculitida:

SILURIAN, Blake.

Trace fossils:

SILURIAN, Blake; McHenry and Watts.
 CARBONIFEROUS, Bassett; McHenry and Watts.
 TRIASSIC, Neaverson; Sizer.
 'Unknown': *see* Problematica.

Mollusca (undifferentiated):

CAMBRIAN, Bolton 1892.
 SILURIAN, Bolton 1892.
 DEVONIAN, [Gregory].
 CARBONIFEROUS, Bolton 1892; [Gregory]; Lebour.
 TRIASSIC, [Gregory].
 JURASSIC, [Gregory]; Torrens, in press.
 CRETACEOUS, [Gregory].
 TERTIARY, Newton 1902; Bell.

Ammonoidea:

DEVONIAN, [Cutbill].
 CARBONIFEROUS, Blake; McHenry and Watts.
 JURASSIC, Blake; [Brighton]; Buckman [1929]; Cox and Arkell; Crick 1922; Curtis [1970]; Donovan; Lang; Neaverson; Sizer; Stubblefield 1939; Thompson; Torrens, in press.
 CRETACEOUS, Blake; Wright and Wright.

Belemnoida:

JURASSIC, Blake; Cox and Arkell; Crick 1922; Lang; Sizer.
 CRETACEOUS, Blake; Wright and Wright.
 TERTIARY, Blake.

Bivalvia:

CAMBRIAN, Salter.
 ORDOVICIAN, Blake; Currie and George; Jackson; Stubblefield 1938; Woods 1891.
 SILURIAN, Blake; Currie and George; McHenry and Watts; Salter; Stubblefield 1938; Wilson; Woods 1891.
 OLD RED SANDSTONE, Blake; McHenry and Watts.
 DEVONIAN, Allen 1901*b*; Blake; [Cutbill]; Jukes-Browne and Else; Woods 1891, 1893.
 CARBONIFEROUS, Anderson; Bassett; Blake; Bolton 1894; Doughty; Jackson; McHenry and Watts; Melmore; North; Platnauer 1891; Sizer; Wilson; Woods 1891.

PERMIAN, Platnauer 1891.

TRIASSIC, Blake.

RHAETIAN, Allen 1904; Sizer; Tutcher.

JURASSIC, Allen 1904, 1906; Anderson; Blake; Cox and Arkell; Jackson; Melmore; Platnauer 1891; Sizer; Torrens, in press; Tutcher; [Winwood and Wilson]; Woods 1891.

CRETACEOUS, Allen 1915; Blake; Hallam; Jackson; Melmore; Platnauer 1891; Wilson; [Winwood and Wilson]; Woods 1891.

EOCENE, Allen 1900; Jackson; Newton 1891.

OLIGOCENE, Allen 1900; Newton 1891.

MIOCENE, Blake.

PLIOCENE, Allen 1910*a*; Jackson; Platnauer 1891; Woods 1891.

TERTIARY, Blake; Jackson; Melmore.

PLEISTOCENE, Bell; Leney; Platnauer 1891; Sizer.

Cephalopoda (undifferentiated):

CAMBRIAN, Anderson; Jackson.

TREMADOC, Salter.

ORDOVICIAN, Anderson; Blake; Crick 1898; Woods 1891.

SILURIAN, Anderson; Bassett; Blake; Crick 1898; Curtis 1956; Jackson; Salter; Stubblefield 1938; Woods 1891.

DEVONIAN, Allen 1901*b*; Crick 1898; [Cutbill]; Jukes-Browne and Else; Woods 1891.

CARBONIFEROUS, Anderson; Bassett; Crick 1898; Jackson; McHenry and Watts; Melmore; Neaverson; North; Platnauer 1891; Sizer; Tutcher; Woods 1891.

TRIASSIC, Crick 1898.

JURASSIC, Anderson; Bassett; Crick 1898; Howarth; Jackson; Melmore; Neaverson; Platnauer 1898; Tutcher; Wilson; Woods 1891, 1893.

CRETACEOUS, Blake; Crane 1892; Crick 1898; Howarth; Jackson; Melmore; Platnauer 1891; Tutcher; Wilson; Woods 1891.

EOCENE, Crick 1898.

Decapoda:

CRETACEOUS, Woods 1891.

Gastropoda:

CAMBRIAN, Anderson; Salter; Woods 1891.

TREMADOC, Curtis 1956; Salter.

ORDOVICIAN, Anderson; Blake; Currie and George; Jackson; Stubblefield 1938; Woods 1891.

SILURIAN, Anderson; Bassett; Blake; Curtis 1956; McHenry and Watts; Jackson; North; Salter; Stubblefield 1938; Wilson; Woods 1891.

Gastropoda (*cont.*):

- OLD RED SANDSTONE, Blake.
 DEVONIAN, Allen 1901*b*; Blake; [Cutbill];
 Jukes-Browne and Else; Woods 1891,
 1893.
 CARBONIFEROUS, Anderson; Blake; Bolton
 1894; Currie and George; Jackson;
 McHenry and Watts; North; Sizer; Woods
 1891.
 TRIASSIC, [Winwood and Wilson].
 RHAETIAN, Allen 1903.
 JURASSIC, Allen 1903, 1904; Anderson;
 Blake; Cox and Arkell; Jackson; Plat-
 nauer 1891; Sizer; Tutchter; [Winwood
 and Wilson]; Woods 1891, 1893.
 CRETACEOUS, Allen 1916; Blake; Crane
 1892; Platnauer 1891; Wilson; Woods
 1891.
 EOCENE, Allen 1900.
 OLIGOCENE, Allen 1900.
 MIOCENE, Blake; Jackson.
 PLIOCENE, Allen 1901*a*; Platnauer 1891.
 TERTIARY, Blake.
 PLEISTOCENE, Allen 1901*a*; Bell; Blake;
 Leney; Platnauer 1891; Sizer.
- Lamellibranchia: *see* Bivalvia.
- Nautiloidea:
- ORDOVICIAN, Blake.
 SILURIAN, Blake.
 OLD RED SANDSTONE, Blake.
 CARBONIFEROUS, Blake.
 JURASSIC, Blake; Cox and Arkell; Howarth;
 Neaverson; Sizer.
 CRETACEOUS, Blake; Wright and Wright.
 TERTIARY, Blake.
- Scaphopoda:
- DEVONIAN, [Cutbill].
 CARBONIFEROUS, Anderson.
 PERMIAN, Riley.
 RHAETIAN, Allen 1903.
 JURASSIC, Allen 1903, 1904; Cox and Arkell;
 [Winwood and Wilson].

- CRETACEOUS, Woods 1891.
 PLEISTOCENE, Melmore.
 Nautiloidea: *see* Mollusca.
 Ophiuroidea: *see* Echinodermata.
 Polyzoa: *see* Bryozoa.
 Porifera:
- CAMBRIAN, Salter; Woods 1891.
 ORDOVICIAN, Salter; Woods 1891; Wyatt.
 SILURIAN, Salter; Anderson; Woods 1891;
 Wyatt.
 DEVONIAN, [Cutbill].
 JURASSIC, Blake; Platnauer 1891; Pyrah.
 CRETACEOUS, Melmore; Platnauer 1891;
 Pyrah; Woods 1891.
 PLEISTOCENE, Leney; Melmore.
- Problematica: *see* Miscellaneous.
 Protozoa (undifferentiated):
- CARBONIFEROUS, Bolton 1892; Jackson.
 CRETACEOUS, Blake.
 EOCENE, Allen 1900.
- Foraminifera:
- SILURIAN, Cantrill *et al.*; Jones.
 DEVONIAN, Jones.
 PERMIAN, Jones.
 JURASSIC, Blake; Jones; [Winwood and Wil-
 son].
 CRETACEOUS, Jones.
 EOCENE, Jones.
 TERTIARY, Blake.
- Radiolaria:
- ORDOVICIAN, Anderson.
 Radiolaria: *see* Protozoa.
 Scaphopoda: *see* Mollusca.
 Stelleroidea: *see* Arthropoda.
 Stromatoporoidea:
- SILURIAN, Salter.
 DEVONIAN, [Gregory].
 Tentaculitida: *see* Miscellaneous.
 Trace fossils: *see* Miscellaneous.
 Trilobita: *see* Arthropoda.
 'Unknown': *see* Miscellaneous.
 Vermes: *see* Annelida.

VERTEBRATA

Vertebrata (undifferentiated):

- OLD RED SANDSTONE, Anderson.
 EOCENE, Allen 1900.
 OLIGOCENE, Allen 1900.
 PLEISTOCENE, Bell.
- Amphibia:
- CARBONIFEROUS, Blake; Lydekker 1889;
 McHenry and Watts; Paton; Waterston
 1954; Woods 1891; Woodward and Sher-
 born.
- PERMIAN, Lydekker 1889; Paton; Waterston
 1954; Woodward and Sherborn.
 TRIASSIC, Blake; Lydekker 1889; Paton;
 Woodward and Sherborn.
 RHAETIAN, Sizer; Woodward and Sherborn.
 CRETACEOUS, Lydekker 1889.
 MIOCENE, Lydekker 1889.
 PLEISTOCENE, Lydekker 1889; Woodward
 and Sherborn.
 HOLOCENE, Carreck.

- Aves:
- CRETACEOUS, Melmore; Seeley; Woods 1891; Woodward and Sherborn.
- EOCENE, Lydekker 1891; Woods 1891; Woodward and Sherborn.
- OLIGOCENE, Woods 1891; Woodward and Sherborn.
- PLIOCENE, Lydekker 1891.
- TERTIARY, Blake.
- PLEISTOCENE, Allen 1901a; Bell; Leney; Lydekker 1891; Melmore; Woodward and Sherborn.
- HOLOCENE, Carreck.
- Fishes:
- ORDOVICIAN, Henrichsen 1971.
- SILURIAN, Anderson; Bassett; Bolton 1892; Henrichsen 1971; Salter; Waterston 1954; Woodward and Sherborn.
- OLD RED SANDSTONE, Blake; Bolton 1892; McHenry and Watts; Waterston 1954, 1968a, 1968b, 1968c; Woods 1891; Woodward 1891; Woodward and Sherborn.
- DEVONIAN, Blake; [Cutbill]; Davies 1871a; Egerton 1869; Enniskillen; Henrichsen 1970, 1971, 1972; Waterston 1954; Woodward and Sherborn.
- CARBONIFEROUS, Anderson; Bassett; Blake; Bolton 1892, 1894; Davies 1871a; [Delair] 1966c; Egerton 1836, 1869; Enniskillen; Henrichsen 1970, 1972; Lebour; McHenry and Watts; North; Platnauer 1891; Sizer; Waterston 1954; Wilson; Woods 1891, 1893; Woodward 1891; Woodward and Sherborn.
- PERMIAN, Davies 1871a; Egerton 1836, 1869; Enniskillen; Henrichsen 1970, 1972; Waterston 1954; Woodward 1891; Woodward and Sherborn.
- TRIASSIC, Bassett; Blake; Egerton 1869; Henrichsen 1970, 1972; Sizer; Waterston 1954; Woodward and Sherborn.
- RHAETIAN, Blake; Bolton 1894; Egerton 1869; Wilson; Woodward and Sherborn.
- JURASSIC, Blake; Davies 1871a; Egerton 1836, 1869; Enniskillen; Hallam; Henrichsen 1970, 1972; Lang; Platnauer 1891; Sizer; Thompson; Torrens, in press; Wilson; Winwood and Wilson; Woods 1891; Woodward 1889, 1891; Woodward and Sherborn.
- CRETACEOUS, Anon 1896; Blake; Bolton 1894; Crane 1892, 1893; Davies 1871a; Egerton 1836, 1869; Enniskillen; Henrichsen 1970, 1971; Platnauer 1891; Sizer; Waterston 1954; Woods 1891; Woodward 1889, 1891, 1895, 1901; Woodward and Sherborn.
- EOCENE, Bolton 1894; Davies 1871a; Egerton 1869; Enniskillen; Henrichsen 1970; Woodward 1889, 1891, 1901; Woodward and Sherborn.
- OLIGOCENE, Egerton 1869; Enniskillen; Henrichsen 1970; Woodward 1901; Woodward and Sherborn.
- MIOCENE, Davies 1871a; Egerton 1869; Enniskillen; Woods 1891.
- PLIOCENE, Allen 1901a; Bell; Gregory; Henrichsen 1970; Woodward 1891.
- TERTIARY, Egerton 1836, 1869; Enniskillen; [Gregory]; Henrichsen 1970; Leney; Platnauer 1891; Woodward and Sherborn.
- Mammalia:
- TRIASSIC, Winwood and Wilson.
- RHAETIAN, Woodward and Sherborn.
- JURASSIC, Melmore; Woodward and Sherborn.
- CRETACEOUS, Woodward and Sherborn.
- EOCENE, Blake; Lydekker 1885, 1887; Melmore; Platnauer 1891; Woods 1891; Woodward and Sherborn.
- OLIGOCENE, Blake; Lydekker 1889; Woods 1891; Woodward and Sherborn.
- MIOCENE, Blake; Lydekker 1885a, 1885b, 1886a, 1887; Woods 1891.
- PLIOCENE, Allen 1901a; Lydekker 1885a, 1885b, 1886b, 1887.
- TERTIARY, Blake; Owen.
- PLEISTOCENE, Allen 1901a; Blake; Bolton 1892; Carreck; [Gregory]; Leney; Lydekker 1885a, 1885b, 1886a, 1886b, 1887; Melmore; Owen; Platnauer 1891; Sanford; Sizer; Woods 1891; Woodward and Sherborn.
- HOLOCENE, Carreck.
- Reptilia:
- CARBONIFEROUS, Blake; Paton.
- PERMIAN, Blake; Paton.
- TRIASSIC, Blake; Bassett; Lydekker 1889; North; Paton; Seeley; Sizer; Wilson; Woodward and Sherborn.
- RHAETIAN, Paton; Sizer; Woodward and Sherborn.
- JURASSIC, Appleby; Blake; [Gregory]; Lang; Lydekker 1889; Melmore; Paton; Platnauer 1891; Seeley; Sizer; Torrens, in press; Woods 1891; Woodward and Sherborn.
- CRETACEOUS, Crane 1892; Lydekker 1889; Paton; Platnauer 1891; Seeley; Woods 1891; Woodward and Sherborn.

Reptilla (*cont.*):

EOCENE, Lydekker 1889; Woodward and Sherborn.
 OLIGOCENE, Woodward and Sherborn.
 PLIOCENE, [Gregory]; Lydekker 1889.
 TERTIARY, Blake.

PLEISTOCENE, Leney; Lydekker 1889; Woodward and Sherborn.
 Vertebrate footprints:
 PERMIAN, Delair 1966*a*, 1966*b*; Paton.
 TRIASSIC, Bassett; Neaverson; Paton.
 JURASSIC, Paton.

PLANTAE

Plantae (undifferentiated):

CAMBRIAN, Salter.
 ORDOVICIAN, Woods 1891.
 SILURIAN, Bassett; Blake; Jackson; Salter.
 OLD RED SANDSTONE, Anderson; Jackson; McHenry and Watts.
 DEVONIAN, Bassett; Blake; Calder; Hopping.
 CARBONIFEROUS, Anderson; Anon 1957; Bassett; Blake; Bolton 1892, 1894; Calder; Hopping; Jackson; Lebour; McHenry and Watts; Neaverson; Platnauer 1891; Riley; Seward 1894; Sizer; Winwood and Wilson; Woods 1891, 1893.
 PERMIAN, Calder; Hopping; Jackson; Sizer.
 TRIASSIC, Blake; Jackson; Lebour; Seward 1894; Sizer.
 RHAETIAN, Sizer.

JURASSIC, Anderson; Blake; Bolton 1892; Calder; Howse; Jackson; Lebour; Melmore; Seward 1894, 1900; Sizer.
 CRETACEOUS, Blake; Calder; Jackson; Platnauer 1891; Woods 1891.
 EOCENE, Allen 1900; McHenry and Watts; Woods 1891.
 OLIGOCENE, Allen 1900.
 PLIOCENE, Allen 1901*a*.
 TERTIARY, Calder; [Gregory].
 PLEISTOCENE, Allen 1901*a*; Sizer.
 Algae (including stromatolites):
 ORDOVICIAN, Salter.
 SILURIAN, Blake; Curtis 1956; Salter; Wyatt.
 DEVONIAN, [Cutbill].
 EOCENE, Morellet and Morellet.

STRATIGRAPHICAL INDEX

PRECAMBRIAN: *see* Problematica.

CAMBRIAN: *see* Annelida, Arthropoda (undifferentiated), Bivalvia, Brachiopoda, Bryozoa, Cephalopoda, Coelenterata (undifferentiated), Crustacea, Echinodermata (undifferentiated), Gastropoda, Hydrozoa, Mollusca (undifferentiated), Plantae (undifferentiated), Porifera.

TREMADOC: *see* Brachiopoda, Crustacea, Gastropoda, Graptolithina, Trilobita.

ORDOVICIAN: *see* Actinozoa, Algae, Annelida, Asterozoa, Bivalvia, Brachiopoda, Bryozoa, Cephalopoda, Chitinozoa, Conulata, Crinozoa, Crustacea, Cystoidea, Echinodermata (undifferentiated), Echinozoa, Edrioasteroidea, Fishes, Gastropoda, Graptolithina, Lamellibranchia, Nautiloidea, Plantae (undifferentiated), Polyzoa, Porifera, Radiolaria, Trilobita.

SILURIAN: *see* Algae, Annelida, Anthozoa, Arthropoda (undifferentiated), Asterozoa, Bivalvia, Blastoidea, Brachiopoda, Bryozoa, Cephalopoda, Coelenterata (undifferentiated), Conulata, Crinozoa, Crustacea, Cystoidea, Echinodermata (undifferentiated), Echinozoa, Fishes, Foraminifera, Gastropoda, Graptolithina, Hydrozoa, Lamellibranchia, Merostomata, Mollusca (undifferentiated), Nautiloidea, Plantae (undiffer-

entiated), Polyzoa, Porifera, Problematica, Stromatolites, Stromatoporoidea, Tentaculitida, Trilobita.

OLD RED SANDSTONE: *see* Arthropoda (undifferentiated), Bivalvia, Brachiopoda, Fishes, Nautiloidea, Plantae (undifferentiated), Vertebrata (undifferentiated).

DEVONIAN: *see* Actinozoa, Algae, Annelida, Anthozoa, Arachnida, Asterozoa, Bivalvia, Brachiopoda, Blastoidea, Bryozoa, Cephalopoda, Coelenterata (undifferentiated), Conodonts, Conulata, Crinozoa, Crustacea, Echinodermata (undifferentiated), Echinozoa, Fishes, Foraminifera, Gastropoda, Graptolithina, Lamellibranchia, Mollusca (undifferentiated), Ophiuroidea, Plantae (undifferentiated), Porifera, Protozoa, Scaphopoda, Trilobita.

CARBONIFEROUS: *see* Actinozoa, Ammonoidea, Amphibia, Annelida, Anthozoa, Arachnida, Arthropoda (undifferentiated), Bivalvia, Blastoidea, Brachiopoda, Bryozoa, Cephalopoda, Coelenterata (undifferentiated), Conulata, Crinozoa, Crustacea, Derived fossils, Echinodermata (undifferentiated), Edrioasteroidea, Fishes, Gastropoda, Hydrozoa, Insecta, Merostomata, Mollusca (undifferentiated), Nautiloidea, Ophiu-

- roidea, Plantae (undifferentiated), Polyzoa, Protozoa (undifferentiated), Reptilia, Scaphopoda, Stellerioidea, Trace fossils, Trilobita.
- PERMIAN: *see* Amphibia, Anthozoa, Bivalvia, Brachiopoda, Crustacea, Fishes, Foraminifera, Plantae (undifferentiated), Reptilia, Scaphopoda, Vertebrate footprints.
- TRIASSIC: *see* Amphibia, Bivalvia, Brachiopoda, Cephalopoda, Crustacea, Derived fossils, Fishes, Gastropoda, Mammalia, Mollusca (undifferentiated), Plantae (undifferentiated), Problematica, Reptilia, Trace fossils, Vertebrate footprints.
- RHAETIAN: *see* Amphibia, Annelida, Bivalvia, Brachiopoda, Crustacea, Echinoidea, Fishes, Gastropoda, Insecta, Lamellibranchia, Mammalia, Plantae (undifferentiated), Reptilia, Scaphopoda.
- JURASSIC: *see* Actinozoa, Ammonoidea, Annelida, Anthozoa, Arthropoda (undifferentiated), Asteroidea, Belemnoidea, Bivalvia, Brachiopoda, Bryozoa, Cephalopoda, Coelenterata (undifferentiated), Crinoidea, Crustacea, Echinodermata (undifferentiated), Echinoidea, Fishes, Foraminifera, Gastropoda, Insecta, Lamellibranchia, Mammalia, Mollusca (undifferentiated), Nautiloidea, Ophiuroidea, Plantae (undifferentiated), Polyzoa, Porifera, Problematica, Reptilia, Scaphopoda, Vertebrate footprints.
- CRETACEOUS: *see* Ammonoidea, Amphibia, Anthozoa, Annelida, Aves, Belemnoides, Bivalvia, Brachiopoda, Bryozoa, Cephalopoda, Coelenterata (undifferentiated), Crinoidea, Crustacea, Decapoda, Echinodermata (undifferentiated), Echinoidea, Fishes, Foraminifera, Gastropoda, Isopoda, Lamellibranchia, Mollusca (undifferentiated), Nautiloidea, Ophiuroidea, Plantae (undifferentiated), Polyzoa, Porifera, Protozoa (undifferentiated), Reptilia, Scaphopoda.
- Eocene: *see* Algae, Anthozoa, Aves, Bivalvia, Cephalopoda, Crustacea, Echinodermata (undifferentiated), Fishes, Foraminifera, Gastropoda, Lamellibranchia, Mammalia, Plantae (undifferentiated), Problematica, Protozoa (undifferentiated), Reptilia, Vertebrata (undifferentiated).
- OLIGOCENE: *see* Aves, Bivalvia, Coelenterata (undifferentiated), Fishes, Gastropoda, Lamellibranchia, Mammalia, Plantae (undifferentiated), Vertebrata (undifferentiated).
- MIOCENE: *see* Amphibia, Anthozoa, Bivalvia, Echinoidea, Fishes, Gastropoda, Mammalia.
- PLIOCENE: *see* Aves, Bivalvia, Bryozoa, Echinodermata (undifferentiated), Fishes, Gastropoda, Hydrozoa, Lamellibranchia, Mammalia, Plantae (undifferentiated), Reptilia.
- TERTIARY (UNDIFFERENTIATED): *see* Annelida, Anthozoa, Aves, Belemnoidea, Bivalvia, Brachiopoda, Bryozoa, Coelenterata, Crustacea, Echinoidea, Foraminifera, Fishes, Gastropoda, Insecta, Lamellibranchia, Mammalia, Mollusca (undifferentiated), Nautiloidea, Plantae (undifferentiated), Polyzoa, Reptilia, Vertebrata (undifferentiated).
- PLEISTOCENE: *see* Amphibia, Annelida, Aves, Bivalvia, Brachiopoda, Bryozoa, Coelenterata (undifferentiated), Crustacea, Echinodermata (undifferentiated), Fishes, Gastropoda, Lamellibranchia, Mammalia, Plantae (undifferentiated), Polyzoa, Porifera, Reptilia, Scaphopoda, Vertebrata (undifferentiated).
- QUATERNARY: *see* PLEISTOCENE.
- HOLOCENE: *see* Amphibia, Aves, Mammalia.

MUSEUMS INDEX

- ABERYSTWYTH: *see* University College of Wales, Aberystwyth.
- AYLESBURY: *see* Buckinghamshire County Museum.
- BATH: *see* Victoria Art Gallery, Bath.
- BEDFORD MUSEUM: Woodward and Sherborn.
- BELFAST: *see* Ulster Museum.
- BIRMINGHAM: *see* University of Birmingham Geological Department.
- BOTANY DEPARTMENT, UNIVERSITY OF GLASGOW: *see* Hunterian Museum.
- BRADFORD: *see* City Art Gallery and Museum, Bradford.
- BRIGHTON: *see* Natural History Museum, Brighton.
- BRISTOL: *see* City Museum, Bristol, *and* University of Bristol.
- BRITISH MUSEUM (NATURAL HISTORY): Bather; Blake; Buckman [1929]; Carreck; Cox and Arkell; Crick 1898, 1922; Curtis 1956; Davies 1871*a*, 1871*b*; Delair 1966*a*; Donovan; Egerton 1836, 1869; Enniskillen; Howarth; Jones; Lang; Lydekker 1885-1887, 1891; Morellet and Morellet; Newton 1891, 1902; Strachan; Torrens in press; Tutchter; Woodward 1889-1901; Woodward and Sherborn; Wright and Wright.
- BUCKINGHAMSHIRE COUNTY MUSEUM: Woodward and Sherborn.
- BURGH MUSEUM, DUMFRIES: Delair 1966*a*.
- CAMBRIDGE: *see* Sedgwick Museum, *and* University of Cambridge, Botanical Museum.
- CARDIFF: *see* National Museum of Wales.

- CASTLE MUSEUM, NORWICH: Leney; Woodward and Sherborn; Wright and Wright.
- CENTRAL LIBRARY, MUSEUM AND ART GALLERY, HULL: Woodward and Sherborn.
- CENTRAL MUSEUM AND ART GALLERY, NORTHAMPTON: Cox and Arkell; Thompson; Thompson and George; Woodward and Sherborn.
- CITY ART GALLERY AND MUSEUM, BRADFORD: Woodward and Sherborn.
- CITY MUSEUM, BRISTOL: Buckman [1929]; Curtis 1970; Wilson; Woodward and Sherborn.
- CITY MUSEUM, LEEDS: Woodward and Sherborn.
- CITY MUSEUM AND ART GALLERY, PETERBOROUGH: Appleby.
- CITY MUSEUM AND ART GALLERY, WORCESTER: Woodward and Sherborn.
- COUNTY MUSEUM, WARWICK: Woodward and Sherborn.
- DORCHESTER: *see* Dorset County Museum.
- DORSET COUNTY MUSEUM: Carreck; [Samuel]; Woodward and Sherborn.
- DUBLIN: *see* Geological Survey of Ireland, National Museum of Ireland, *and* Trinity College, Dublin.
- DUBLIN UNIVERSITY MUSEUM: *see* Trinity College, Dublin.
- DUMFRIES: *see* Burgh Museum, Dumfries.
- EDINBURGH: *see* Institute of Geological Sciences, Edinburgh, *and* Royal Scottish Museum.
- ELGIN MUSEUM: Waterston 1968*b*, 1968*c*; Woodward and Sherborn.
- EXETER: *see* Royal Albert Memorial Museum, Exeter.
- FARNHAM: *see* Pitt Rivers Museum, Farnham.
- FORRES MUSEUM: Waterston 1968*a*; Woodward and Sherborn, *see also* Royal Scottish Museum, Edinburgh.
- GEOLOGICAL SURVEY OF IRELAND: McHenry and Watts; Woodward and Sherborn.
- GEOLOGICAL SURVEY MUSEUM: *see* Institute of Geological Sciences, Leeds, London, *and* Edinburgh.
- GEOLOGY MUSEUM, UNIVERSITY OF BRISTOL: *see* University of Bristol.
- GLASGOW: *see* Hunterian Museum, University of Glasgow, *and* Royal College of Science and Technology, Glasgow.
- HALIFAX: *see* Museums and Art Galleries, Halifax.
- HANCOCK MUSEUM, NEWCASTLE UPON TYNE: Howse; Lebour; Woodward and Sherborn.
- HULL: *see* Central Library, Museum and Art Gallery, Hull, *and* University of Hull Geology Department.
- HUNTERIAN MUSEUM, UNIVERSITY OF GLASGOW: Anon 1957; Calder; Currie and George; [Gregory]; Hopping; Woodward and Sherborn.
- INSTITUTE OF GEOLOGICAL SCIENCES, EDINBURGH: Anderson; Strachan; Woodward and Sherborn.
- INSTITUTE OF GEOLOGICAL SCIENCES, LEEDS: Allen 1902*a*, 1902*b*; Blake; Cantrill *et al.*; Mitchell and White; Strachan.
- INSTITUTE OF GEOLOGICAL SCIENCES, LONDON: Allen 1900, 1901*a*, 1901*b*, 1902*a*, 1902*b*, 1903, 1904, 1905, 1906, 1915, 1916; Blake; Buckman [1929]; Cantrill *et al.*; Carreck; Cox and Arkell; Curtis 1956; Donovan; Howarth; Strachan; Strachan *et al.*; Stubblefield 1936, 1938; Woodward and Sherborn; Wright and Wright.
- IPSWICH MUSEUM: Bell; Woodward and Sherborn.
- KILMARNOCK: *see* Public Library, Museum and Art Gallery, Kilmarnock.
- LEEDS: *see* City Museum, Leeds, *and* Institute of Geological Sciences, Leeds.
- LEICESTERSHIRE MUSEUM, ART GALLERIES AND RECORDS SERVICE: Appleby; Sizer; Woodward and Sherborn.
- LUDLOW MUSEUM: Woodward and Sherborn.
- MALTON MUSEUM: Woodward and Sherborn.
- MANCHESTER MUSEUM: Bolton 1892, 1894; Buckman [1929]; Cox and Arkell; Seward 1900; Woodward and Sherborn.
- MUSEUM AND ART GALLERY, PAISLEY: Delair 1966*b*.
- MUSEUM OF NATURAL HISTORY, SCARBOROUGH: Howarth; Woodward and Sherborn.
- MUSEUM OF PRACTICAL GEOLOGY, LONDON: *see* Institute of Geological Sciences, London.
- MUSEUM OF SCIENCE AND ART, DUBLIN: *see* National Museum of Ireland.
- MUSEUMS AND ART GALLERIES, HALIFAX: Woodward and Sherborn.
- NATIONAL MUSEUM OF IRELAND, DUBLIN: McHenry and Watts; Woodward and Sherborn.
- NATIONAL MUSEUM OF WALES, CARDIFF: Bassett; North; Strachan.
- NATURAL HISTORY AND ANTIQUARIAN MUSEUM, PENZANCE: Woodward and Sherborn.
- NATURAL HISTORY MUSEUM, BRIGHTON: Anon 1896; Crane 1892, 1893; Woodward and Sherborn.
- NEWCASTLE UPON TYNE: *see* Hancock Museum, Newcastle upon Tyne.
- NORTHAMPTON: *see* Central Museum and Art Gallery, Northampton.
- NORWICH: *see* Castle Museum, Norwich.
- OWENS COLLEGE, MANCHESTER: *see* Manchester Museum.
- OXFORD: *see* University Museum, Oxford.
- PAISLEY: *see* Museum and Art Gallery, Paisley.
- PENZANCE: *see* Natural History and Antiquarian Museum, Penzance.
- PETERBOROUGH: *see* City Museum and Art Gallery, Peterborough.

- PITT RIVERS MUSEUM, FARNHAM: Carreck.
 PUBLIC LIBRARY, MUSEUM AND ART GALLERY, KILMARNOCK: Delair 1966c.
 PUBLIC MUSEUM AND ART GALLERY, SUNDERLAND: Woodward and Sherborn.
 ROYAL ALBERT MEMORIAL MUSEUM, EXETER: Rowe.
 ROYAL COLLEGE OF SCIENCE AND TECHNOLOGY, GLASGOW: Howarth.
 ROYAL COLLEGE OF SURGEONS, HUNTERIAN MUSEUM: [Morris and Owen]; Owen; Woodward and Sherborn.
 ROYAL SCOTTISH MUSEUM, EDINBURGH: Anderson; Delair 1966a; Henrichsen 1970, 1971, 1972; Paton; Sime; Waterston 1954, 1968a; Woodward and Sherborn.
 ST. ANDREWS MUSEUM: Woodward and Sherborn.
 SALFORD: *see* Science Museum, Salford.
 SALISBURY AND SOUTH WILTSHIRE MUSEUM: Woodward and Sherborn.
 SCARBOROUGH: *see* Museum of Natural History, Scarborough.
 SCIENCE MUSEUM, SALFORD: Woodward and Sherborn.
 SEDGWICK MUSEUM, CAMBRIDGE UNIVERSITY: [Brighton]; Buckman [1929]; Cox and Arkell; Curtis 1956; [Cutbill]; Donovan; Howarth; Salter; Seeley; Strachan; Woods 1891, 1893; Woodward and Sherborn; Wright and Wright.
 SHEFFIELD CITY MUSEUMS: Riley.
 SHERBORNE SCHOOL MUSEUM: Torrens, in press.
 SHREWSBURY MUSEUM: Woodward and Sherborn.
 SOMERSET COUNTY MUSEUM, TAUNTON CASTLE: Carreck; Hallam; Sanford; Woodward and Sherborn.
 SUNDERLAND: *see* Public Museum and Art Gallery, Sunderland.
 TAUNTON: *see* Somerset County Museum, Taunton Castle.
 TORQUAY NATURAL HISTORY SOCIETY MUSEUM: Jukes-Browne and Else.
 TRINITY COLLEGE, DUBLIN: Strachan; Woodward and Sherborn.
 ULSTER MUSEUM: Donovan; Doughty.
 UNIVERSITY COLLEGE OF WALES, ABERYSTWYTH: Wyatt.
 UNIVERSITY MUSEUM, OXFORD: Buckman [1929]; Delair 1966a; Edmonds; Torrens 1974, in press; Woodward and Sherborn.
 UNIVERSITY OF BIRMINGHAM GEOLOGY DEPARTMENT: Strachan.
 UNIVERSITY OF BRISTOL, GEOLOGY MUSEUM: Curtis 1956.
 UNIVERSITY OF CAMBRIDGE, BOTANICAL MUSEUM: Seward 1894.
 UNIVERSITY OF HULL GEOLOGY DEPARTMENT: Strachan.
 VICTORIA ART GALLERY, BATH: [Winwood and Wilson]; Woodward and Sherborn.
 WALES: *see* National Museum of Wales.
 WARWICK: *see* County Museum, Warwick.
 WHITBY MUSEUM: Howarth; Woodward and Sherborn.
 WOODWARDIAN MUSEUM, CAMBRIDGE: *see* Sedgwick Museum, Cambridge University.
 WORCESTER: *see* City Museum and Art Gallery, Worcester.
 YORKSHIRE MUSEUM, YORK: Cox and Arkell; Howarth; Melmore; Platnauer 1891, 1894; Pyrah; Woodward and Sherborn.

SUPPLEMENTARY REFERENCES

As noted earlier the whereabouts of a great many type, figured, and cited fossils may remain unknown if there is no published information on them, and there can be no guarantee that some museums are even aware that they house such material. Apart from catalogues of types, however, there are numerous other publications which contain information on old collections, and which may give some guidance in a search for a particular specimen. Most museums produce Annual Reports which list major accessions during any one particular year, and many also publish guides to the collections and galleries, often including notes on particular items of interest. Biographical and/or obituary notices of known collectors may include details of the whereabouts of their collections, with many journals of local natural history societies giving a great deal of information for a particular area. The new *Newsletter of the Geological Curators Group* plans to collate and publish these kinds of data and to provide general guidance on the location of collections of fossils in Britain. It is clearly not possible to cite the whole range of these publications here, but the following list is intended to draw attention to the variety of sources of information and to some

standard references on museums, collections, and biographies of collectors; it makes no claim to be either complete or comprehensive in its coverage. Also included are a few useful references giving guidance to the maintenance and storage of type fossil collections.

- CHALMERS-HUNT, J. M. In press. *Natural History auctions 1700–1972: a register of sales in the British Isles*. Sotheby & Co., London. [Information on the disposal of collections at auctions.]
- COOPER, J. A. Geological collections and collectors of note: 2. Northampton Central Museum. *Newsletter of the Geological Curators Group*, No. 2, 40–45. [With an appendix (pp. 46–51) by H. S. Torrens on collectors represented at Northampton; both the paper and appendix note important collections which have been discovered recently, and there is a note that a type catalogue is in preparation jointly by Cooper and Torrens.]
- COX, L. R. 1956. Fossil invertebrate collections from India and Pakistan in the British Museum (Natural History). *J. Palaeont. Soc. India*, 1, 94–98. [Valuable notes on collections and collectors, with the publications in which the specimens are described.]
- CURTIS, M. L. K. 1962. [Note on location of type specimens of Silurian Bivalvia and Gastropoda.] *Ludlow Research Group Bulletin*, No. 10, p. 4. [City Museum, Bristol, and IGS, London.]
- DANCE, S. P. 1967. Report on the Linnaean shell collection. *Proc. Linn. Soc. Lond.* 178, 1–24, pls. 1–10. [Mainly conchological, but also with details of collectors who provided Linnaeus with fossils.]
- HUXLEY, T. H. and ETHERIDGE, R. 1865. *A catalogue of the collections of fossils in the Museum of Practical Geology, with an explanatory introduction*. lxxix+381 pp., H.M.S.O., London. [Valuable information in footnotes referring to donors of collections in IGS.]
- LAMBRECHT, K., QUENSTEDT, W. and QUENSTEDT, A. 1938. *Fossilium catalogus I. Animalia. Pars 72: Palaeontologi. Catalogus bio-bibliographicus*. xxii+495 pp., W. Junk, Gravenhage. [A major, though often neglected, source of biographical details of palaeontologists; in German but with abundant data relevant to Britain.]
- LEBOUR, G. A. 1886. Materials for a palaeontology of Northumberland. Chapter 14, pp. 108–113. In *Outlines of the geology of Northumberland and Durham*. viii+156 pp., 5 pls., Lambert and Co., Newcastle upon Tyne. [An example of data on regional collections; many of those listed are now in the Hancock Museum.]
- LEEDS, E. T. Edited with notes and additions by W. E. SWINTON, 1956. *The Leeds collection of fossil reptiles from the Oxford Clay of Peterborough*. xii+104 pp., 6 pls., B. H. Blackwell, Oxford. [History of the collection and disposal of one of the most important collections of British vertebrates.]
- MURRAY, D. 1904. *Museums: their history and their use: with a bibliography and list of museums in the United Kingdom*. Vol. 1, xvi+339 pp.; Vol. 2, 363 pp.; Vol. 3, 341 pp., James MacLehose and Sons, Glasgow. [Contains a great deal of information on early collectors and collections, and an extensive bibliography of museum publications, including fossil catalogues.]
- MURRAY, J. W. 1971. The W. B. Carpenter Collection. *Micropalaeontology*, 17, 105–106. [Notes on Carpenter's collection of foraminifers in the P. F. Sladen Collection at the Royal Albert Memorial Museum, Exeter.]
- OWEN, D. E. 1964. Care of type specimens. *Mus. J.* 63, 288–291.
- PYRAH, B. J. 1974. Geological collections and collectors of note: 3. Yorkshire Museum. *Newsletter of the Geological Curators Group*, No. 2, 52–55. [With an appendix (pp. 56–58) by H. S. Torrens of notes on some Yorkshire Museum collectors.]
- SARJEANT, W. A. S. 1974. A history and bibliography of the study of fossil vertebrate footprints in the British Isles. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 16 (Special issue), 165–378. [Contains a great deal of useful information on collectors and collections, including present repositories.]
- SHERBORN, C. D. 1940. *Where is the — Collection? An account of the various Natural History Collections which have come under the notice of the compiler Charles Davies Sherborn D.Sc. Oxon. between 1880 and 1939*. 148 pp., University Press, Cambridge. [The standard primary source of information on the location of natural history collections, with a bias towards geology; the information is being updated under the editorship of R. Cleevely of the BM(NH) to be incorporated in a 2nd edition of the book, which will be published by the BM(NH) and the Society for the Bibliography of Natural History.]
- TORRENS, H. S. 1974a. Geological collections and collectors of note: 1. Lichfield Museums (pre 1850). *Newsletter of the Geological Curators Group*, No. 1, 5–10.

- TORRENS, H. S. 1974*b*. Geological collections and collectors of note: 1. Lichfield Museums (pre 1850) post-script. *Ibid.* No. 2, 38–39.
- 1974*c*. Locating and identifying collections of palaeontological material. *Ibid.* No. 1, 12–17. [Includes a useful list of published sources of biographies of geologists in addition to those listed here.]
- WOODWARD, A. S. 1904. The department of geology, pp. 197–340. In *The history of the collections contained in the Natural History departments of the British Museum*. Vol. 1, 442 pp., British Museum (Natural History), London. [Abundant data on important early collectors and collections, with information on publications in which specimens are described.]
- YOCHELSON, E. 1969. Fossils—the how and why of collecting and storing. In COHEN, D. M. and CRESSEY, R. F. (eds.). Symposium on Natural History collections, past, present, future. *Proc. biol. Soc. Wash.* 82, 585–601.

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